CLAIMS:

1. An apparatus for detecting the movement of internal organs (9) of the body, comprising:

a) an X-ray device (1, 5) and/or an ultrasound device (8) for producing an image of at least one clearly defined body structure (10);

b) a data processing device (6) which is coupled to the X-ray device (1, 5) or ultrasound device (8) and is designed to determine the position (x_z) of the clearly defined body structure (10) in the image and to generate a movement parameter there from.

2. An apparatus as claimed in claim 1, characterized in that the clearly defined body structure is a part of the diaphragm (10).

3. An apparatus as claimed in claim 1, characterized in that it comprises an X-ray device (1, 5) and is designed to produce an image of the body structure with a minimum size of the irradiation field (3) and/or with a minimum dose of radiation.

4. An apparatus as claimed in claim 1, characterized in that it comprises an ultrasound device (8) which is designed to produce at least one sectional image that contains the clearly defined body structure (10).

5. An apparatus as claimed in claim 1, characterized in that it comprises an ultrasound device (8) which has means for fixing it to the body of a patient (4), and in that it comprises a locating device for determining the spatial position of the ultrasound device (8), said locating device being coupled to the data processing device (6).

6. An apparatus as claimed in claim 1, characterized in that it is designed to produce images of alternating clearly defined body structures.

7. An apparatus as claimed in claim 1, characterized in that the data processing device (6) is designed to calculate a quality measure for the movement parameter.

8. An apparatus as claimed in claim 1, characterized in that the data processing device (6) is designed to calculate the position of an internal organ (9) of the body with the aid of a model that is dependent on the movement parameter.

9. A navigation system for navigating a catheter in a vascular system, comprising

a) a locating device for determining the spatial position of the catheter;

b) an apparatus as claimed in at least one of claims 1 to 8 for determining a movement parameter;

c) a data processing device which is coupled to the locating device and to the apparatus and is designed to determine the position of the catheter relative to the vascular system.

10. A method of recording the movement of internal organs (9) of the body, comprising the steps

a) producing an image of at least one clearly defined body structure (10) by means of X-ray radiation and/or ultrasound;

b) determining the position (x_z) of the clearly defined body structure (10) in the image and generating a movement parameter.